CLAIMS (NOT AMENDED HEREIN)

1. (Canceled)

2. (Previously presented) The flip chip light emitting diode die as set forth in claim 3, wherein the periodic reflectivity modulations define a diffraction grating that provides a predetermined diffraction of the light produced by the device mesa.

3. (Previously presented) A flip chip light emitting diode die including:

a light-transmissive substrate;

a plurality of semiconductor layers disposed on the light-transmissive substrate, the semiconductor layers including a p-type layer and an n-type layer, the semiconductor layers defining a device mesa; and

a reflective electrode disposed on the device mesa to energize the device mesa to produce light and to reflect the light produced by the device mesa toward at least one of the light-transmissive substrate and sides of the device mesa, the reflective electrode including electrical connecting material disposed over portions of the device mesa and making electrical contact with the device mesa and a light-transmissive dielectric layer laterally interspersed with the electrical connecting material, the reflective electrode having laterally periodic reflectivity modulations.

4. (Original) The flip chip light emitting diode die as set forth in claim 3, wherein the electrical connecting material defines isolated regions, and the reflective electrode further includes:

an electrically conductive reflective layer disposed over the dielectric layer and the electrical connecting material, the reflective layer laterally electrical interconnecting the isolated regions of the electrical connecting material.

5. (Original) The flip chip light emitting diode die as set forth in claim 4, wherein the reflective electrode further includes:

a electrically conductive bondable layer disposed on the electrically conductive reflective layer.

6. (Original) The flip chip light emitting diode die as set forth in claim 4, wherein the reflective electrode further includes:

a current-spreading layer disposed between the device mesa and the dielectric layer.

7. (Original) The flip chip light emitting diode die as set forth in claim **6**, wherein the current-spreading layer includes:

a light-transmissive electrically conductive layer.

8. (Original) The flip chip light emitting diode die as set forth in claim **7**, wherein the light-transmissive electrically conductive layer includes:

a thin film of a light-absorbing material, the thin film having a thickness of less than about 10 nm and greater than 70% light transmission.

9. (Original) The flip chip light emitting diode die as set forth in claim **8**, wherein the light-absorbing material is selected from a group consisting of nickel oxide, gold, indium tin oxide, and zinc oxide.

10. (Original) The flip chip light emitting diode die as set forth in claim **7**, wherein the current-spreading layer includes:

a topmost one or more of the plurality of semiconductor layers.

11. (Original) The flip chip light emitting diode die as set forth in claim **4**, wherein the dielectric layer has a thickness selected to define an interference reflector optimized for a characteristic wavelength of the light produced by the device mesa.

12. (Original) The flip chip light emitting diode die as set forth in claim **3**, wherein the interspersing of the electrical connecting material and the dielectric layer define a reflection diffraction grating optimized for a characteristic wavelength of the light produced by the device mesa.

13. (Original) The flip chip light emitting diode die as set forth in claim **3**, wherein the dielectric layer is selected from a group consisting of a silicon oxide (SiO_x), a silicon nitride (SiN_x), and a silicon oxynitride (SiO_xN_y), where x and y correspond to stoichiometric parameters.

14. (Previously presented) A flip chip light emitting diode die including:

a light-transmissive substrate;

a plurality of semiconductor layers disposed on the light-transmissive substrate, the semiconductor layers including a p-type layer and an n-type layer, the semiconductor layers defining a device mesa; and

a reflective electrode disposed on the device mesa to energize the device mesa to produce light and to reflect the light produced by the device mesa toward at least one of the light-transmissive substrate and sides of the device mesa, the reflective electrode including a topmost one or more of the plurality of semiconductor layers, the topmost one or more of the plurality of semiconductor layers including first insulating portions having a first refractive index, and the topmost one or more of the plurality of semiconductor layers further including second semiconducting portions laterally interspersed amongst the first insulating portions and having a second refractive index different from the first refractive index, the first insulating portions and the second semiconducting portions cooperatively defining the topmost one or more of the plurality of semiconductor layers, the reflective electrode having laterally periodic reflectivity modulations.

15. (Original) The flip chip light emitting diode die as set forth in claim **14**, wherein the first insulating portions of the topmost one or more of the plurality of semiconductor layers include:

ion-implanted lateral regions formed of the same material as the second semiconducting portions, wherein the ion-implanted lateral regions are substantially less electrically conductive than the second semiconducting portions.

16. (Previously presented) The flip chip light emitting diode die as set forth in claim **3**, wherein an interface disposed between the plurality of semiconductor layers and the reflective electrode is roughened to scatter the reflected light toward the sides of the device mesa.

17. (Original) The flip chip light emitting diode die as set forth in claim **16**, wherein roughening includes a lateral periodicity defining a diffraction grating.

18. (Previously presented) A flip chip light emitting diode die including:

a light-transmissive substrate;

a plurality of semiconductor layers disposed on the light-transmissive substrate, the semiconductor layers including a p-type layer and an n-type layer, the semiconductor layers defining a device mesa; and

a reflective electrode disposed on the device mesa to energize the device mesa to produce light and to reflect the light produced by the device mesa, the reflective electrode including electrical connecting material disposed over portions of the device mesa and making electrical contact with the device mesa, an insulating grid having openings at which the electrical connecting material is disposed, and a reflective layer disposed over the insulating grid and the electrical connecting material and electrically interconnecting the electrical connecting material at the openings, a roughened interface being disposed between the reflective layer and the insulating grid to scatter the reflected light toward the sides of the device mesa.

19-28. (Canceled)

29. (Previously presented) A flip chip light emitting diode die including:

a light-transmissive substrate;

a plurality of semiconductor layers disposed on the light-transmissive substrate, the semiconductor layers including a p-type layer and an n-type layer, the semiconductor layers defining a device mesa; and

a reflective electrode disposed on the device mesa to energize the device mesa to produce light and to reflect the light produced by the device mesa toward at least one of the light-transmissive substrate and sides of the device mesa, the reflective electrode including electrical connecting material portions disposed over the device mesa and making electrical contact with the device mesa and light-transmissive dielectric portions disposed over the device mesa and laterally interspersed with the electrical connecting material portions.

30. (Previously presented) The flip chip light emitting diode die as set forth in claim **29**, wherein the electrical connecting material portions are isolated from one another, and the reflective electrode further includes:

an electrically conductive reflective layer disposed over the connecting material portions and the dielectric portions, the reflective layer laterally electrical interconnecting the isolated electrical connecting material portions.